TOWARDS A CRITICAL-INTERPRETIVE ANALYSIS FRAMEWORK FOR ICT4D IN GOVERNMENT

Hossana Twinomurinzi
twinoh@up.ac.za
Department of Informatics, University of Pretoria

Jackie Phahlamohlaka
jphahlamohlaka@csir.co.za
Systems Modeling, DPSS, Council for Scientific & Industrial Research (CSIR)

Elaine Byrne
elainebyrne007@gmail.com
Department of Informatics, University of Pretoria
& Department of Epidemiology & Public Health, Royal College of Surgeons Ireland

Abstract

The road of development through Information and Communication technology (ICT4D) is lined with deep potholes and dead ends since little is done to "accumulate either knowledge or practical guidance" (Heeks and Bailur, 2007, p. 243). This paper concerns how ICT can lead to development and, in particular, how ICT can facilitate government policy implementation in a development context; development being the emancipation and/or freedom of people from different forms of domination such as poverty, disease and oppression. Based on a three year ethnographic immersion in an emancipatory oriented longitudinal research project four theories stood out in their ability to offer some answers; the Capabilities Approach, Actor-Network Theory, the Diffusion of Innovations Theory and Habermas' Theory of Communicative Action. Each of the named theories gave resourceful explanatory insights on how ICT can lead to development but each fell short at some point. By adopting an ethnographic approach where various theories explain different parts of the problem but not the whole of it, a theoretical framework was derived from the four theories. The framework was able to more cohesively explain how ICT can lead to development. This paper reports on the process of deriving the theoretical framework and uses the framework to analyse one research setting as a case study. The practical and theoretical contributions of the framework are respectively in its critical interpretivist explanatory power of ICT4D projects as well as in its provision of guidelines on how to conduct ICT4D research.

Keywords: ICT for Development (ICT4D), Critical Interpretivism, Capabilities Approach, Communication Action, Diffusion of Innovation, Actor Network Theory, Ethnography, South Africa

TOWARDS A CRITICAL-INTERPRETIVE ANALYSIS FRAMEWORK FOR ICT4D IN GOVERNMENT

1. INTRODUCTION

With more than 43% of the population living below the poverty line (The Presidency, 2007) emancipation and development are critical driving forces for the South African government. South Africa has been bold enough to admit that despite the open and active sponsorship and support for the use of ICT to implement government policy (e-government), the expected benefits are far from being realised (Harris, 2006, Republic of South Africa, 2006, South Africa, 2006).

IS researchers would argue that the main reason for the failure is the overly deterministic approach that has been adopted to drive e-government initiatives without taking into account the necessary human and social contexts. Most published e-government strategies are based on successful experiences from developed countries, whose experiences are not relevant to the local contexts in developing countries (Alexander and Phahlamohlaka, 2007, Avgerou, 2003, Kanungo, 2004, Odedra-Straub, 2003, Wade, 2002, Young and Ridley, 2003, Walsham, 2001). Chen et al (2006) report that e-government publications only focus on the *potential* and *perceived* benefits of the technological innovations. Chen et al (2006) highlight five contextual areas where developed nations differ from developing ones: history and culture; technical staff; infrastructure; citizens, and; government officers.

These differences additionally highlight the critical need to contextually adapt ICT when implementing government initiatives. The differences also present an opportunity for a solution that is relevant to developing countries. The latter two statements pointed to a research opportunity to investigate how ICT can facilitate government policy implementation in a development context. The expected contribution of this paper to research and to practice is in proposing a framework on how ICT4D research can be conducted as well as providing a step-by-step guide on how ICT4D projects can be carried out in practice.

The paper is structured as follows; the next section explains the ethnographic research design employed to investigate the research question. It is followed by the research setting describing how data was collected and analysed. The following section builds on the key findings from the analysed data to describe the process of developing the theoretical framework. The final section draws conclusions, the contributions of the framework to research and practice, and identifies the limitations of the research.

2. RESEARCH DESIGN

In order to investigate how to adapt ICT in an e-government perspective while at the same time taking into consideration the development context of South Africa, it was necessary to adopt a research design that is "interactive and creative, selective and interpretive, illuminating patches of the world around it, giving meaning and suggesting further paths of enquiry" (Rock, 2001, p. 30). This research design was ethnography.

Ethnography is a qualitative research design where the researcher is involved by "participating, overtly or covertly, in people's daily lives for an extended period of time, watching what happens, listening to what is said, asking questions – in fact, collecting whatever data are available to throw light on the issues that are the focus of the research" (Hammersley and Atkinson, 1995, p. 1). Ethnographers unearth the basis of human social

actions before they assign meaning to behaviours and beliefs (Schensul et al., 1999, p. 1) and rather than hide from situations that arise in the contextual situations, ethnographers create "window(s) of opportunity" (Zuboff, 1988).

The research setting is composed of two research projects initiated in 2003. The two projects are centered on emancipating people on their awareness of the Promotion of Administration Justice Act 3 of 2000 (PAJA) in South Africa through the use of collaborative technology (Phahlamohlaka et al., 2008, Twinomurinzi, 2007, Twinomurinzi and Phahlamohlaka, 2005, Twinomurinzi and Phahlamohlaka, 2006). The next section describes the research projects, hereafter referred to as the PAJA Projects, as the research setting.

3. RESEARCH SETTING

Due to space limitations of conference publications the research settings are briefly described guided by the PAJA Project inputs, process and outputs.

3.1 PAJA Project Inputs

The aim of the first PAJA Project was to explore the ability of web-based Group Support Systems (GSS) to increase the awareness of South African citizens about the PAJA whilst the citizens engaged with government officials. The aim of the second PAJA Project was to harness government-citizen interactions using web-based GSS tools.

The PAJA Projects research was conducted in three field locations between 2005 and 2008 (Table 1); Lebotloane in the North West Province (hosted by Lerethlabetse Multi Purpose Community Centre – now called the Lerethlabetse Thusong Service Centre); Siyabuswa in the Mpumalanga Province (hosted by the Siyabuswa Education Improvement and Development Trust - SEIDET); and the University of Pretoria in the Gauteng Province (hosted by the Department of Informatics). Lebotloane and Siyabuswa are both rural towns.

Table 1: Research Participation at the Research Sites

	Siyabuswa	**Lebotloane**	**University of Pretoria**
Province where Research Participants came from	Mpumalanga Limpopo	North West	Gauteng
Number of Research Participants (2005)	22	29	8
Number of Research Participants (2006)	12	24 (1 new)	8 (1 new)
Number of Research Participants (2007/8)	18	16	4

3.2 PAJA Project Process

The PAJA Project conducted the research using one-day research workshops. These workshops consisted of; social interactions such as brief introductions of the participants and the meals; a description of the PAJA Projects; a theoretical explanation of the PAJA (Table2); a practical simulation using technological artifacts of the PAJA in action (Table 3); and group/individual research feedback sessions. In addition to the research instruments used to conduct the PAJA Project and the data collected electronically, more data was collected at each of these stages through participant observations.

Table 2: Theoretical Training across the three research sites

	Siyabuswa	Lebotloane	University of Pretoria
2005 Trainers	1. Professor of Law from the Justice College 2. A Master of the High Court from the North West Province	1. Professor of Law from the Justice College 2. A Master of the High Court from the North West Province	No training provided
2006 Trainers	1. The PAJA Project leader made a recap and handed out PAJA brochures	1. The PAJA Project leader made a recap and handed out PAJA brochures	No training provided
2007/8 Trainers	No training provided	No training provided	No training provided

Table 2: The Technological Artifacts Used

Technology Artifact used in	Siyabuswa	Lebotloane	University of Pretoria
2005	GroupSystems®	GroupSystems®	GroupSystems®
2006	GroupSystems®	GroupSystems® and MS Office Word 2003 ®*	MS Office Word 2003 ®
2007/8 Scenario	MS Office Word 2003 ®	MS Office Word 2003 ®	MS Office Word 2003 ®

* The GroupSystems® failed and we were forced to use MS Office Word 2003 ®. Thereafter, we decided to use MS Office Word 2003 ®

3.3 PAJA Project Outputs using Grounded Theory

The plethora of data collected over the three years was qualitatively analysed using Strauss and Corbin's (1990, Strauss, 1987) approach to Grounded Theory which adopts the three phases of open coding, axial coding and finally selective coding.

The Grounded Theory analysis revealed a number of issues ranging from unemployment to the (ir)relevance of the ICT artefact. The key insights that emerged in terms of development, suggest that there exists an environment in South Africa where people, especially women, are limited in their opportunities to become emancipated. Women are not the preferred candidates for employment. Society also causes women to accept positions of inferiority and does not prepare them for the likely adverse conditions that they could face. Women often end up unemployed and being forced to raise their families on their own. The townships while being crime infested are where these women can probably afford certain basic minimums without being employed. For such women in desperate conditions, they probably assume that government will empathize with them in their condition. The Government on the other hand in being bureaucratic makes assumptions about the conditions of any applicant – regardless of gender. They make it the responsibility of an applicant to provide all the required and substantiating information that is needed.

Persuasion emerged as an important characteristic in emancipatory research. In persuading individuals to form a collective for the workshops we primarily drew on a personal power base which is more aligned to the South African notion of Ubuntu. During the process of persuasion it is easy to unconsciously raise unrealistic expectations. It is consequently necessary to manage expectations in particular those that concern finances and the capacity to assist individuals with their personal problems.

Persuasion is however not enough; a balance is required between the social and the technical. On one hand, there are minimum technical requirements that are needed to support the interactions while on the other hand there is a need to deal socially with individuals. The technology needs to be functional enough not to be seen as a threat but as a tool that enhances emancipation for individuals. In the event that the technology is not functional enough,

something which is a strong likelihood in rural areas, there should be manual non-automated-technology alternatives which can be resorted to such as paper.

Collectives are formed because of the continual engagements over the three years. A new lifeworld is created amongst these collectives with each of the individuals accepting a role within the collective. The new lifeworld is based on the experiences learned because of being part of the PAJA Project. Such a lifeworld which demonstrates emancipation automatically attracts other members to it.

During the three years of immersion into the above PAJA Project, efforts were made to identify a theory that could explain; how ICT can lead to development and, in particular, how ICT can facilitate policy implementation in a development context. In the next section, we turn our attention to the necessity of trying to identify a suitable theory for the research.

4. A THEORETICAL FRAMEWORK

Theory is an important and essential guide for research. Theories are based on underlying assumptions about the nature of a phenomenon and as such are a way of viewing and not viewing the phenomenon (Reed, 2005, Walsham, 2001). The choice of theory to use is often a matter of complex judgement about the relative insights and fruitfulness of each theory or parts of it (Klein and Huynh, 2004, p. 196). There are no correct and or wrong theories but those which a reader finds appealing in explaining a phenomenon. The explanatory power of the identified theories can only be judged through a peer review (Walsham, 1993, p. 6). Walsham (1993) justifies the creation of a synthesized analysis framework for organisational change based on the dimensions of context, process and the content identifying four major hallmarks; i) a clearly delineated set of levels of analysis, ii) a description of the process under examination, iii) a model of human behaviour and, iv) the linkage between context and process (1993, p. 53-54). Accordingly in this paper, the level of analysis is delineated with regards the emancipation of people. The description of the process of emancipation and model of human behaviour are both described in the previous section on the PAJA project outputs. Walsham (1993) then linked context and process with respect to IS using structuration theory with a view to create the analysis framework towards understanding organisational change.

In this paper we argue that the context of organisational change as focused on by Walsham (1993) is at a micro level. Richardson and Robinson (2007, p. 264) point to the necessity in critical research such as this of identifying the level of context at the micro, meso or macro level. This research in dealing with communities at government level adopts its context at a macro level and hence found more than one theory to be appealing.

During the immersion in the PAJA Project, a number of theories were explored which could link the process of the PAJA Project and the community and government context to understand emancipation with respect to IS. Four theories appealed to the authors to link context and process; the Capabilities Approach, Actor-Network Theory, the Diffusion of Innovations Theory and Habermas' Theory of Communicative Action. Each theory had an appeal in explaining only a portion of how IS could make a contribution to development but not one of them could explain the entire picture. Hence, and consistent with the ethnographic design of this research, a theoretical framework was iteratively created using the breakdown-resolution-coherence process from ethnography as described next.

4.1 The Breakdown-Resolution-Coherence Process

Agar (1986) notes that studying humans requires an intensive personal involvement and "an improvisational style to meet situations not of the researcher's making, and an ability to learn

from a long series of mistakes" (p. 12). Agar (1986) deconstructs the definable attributes of a theory as *strips* that can serve as observable research points. During an ethnographic immersion into the research phenomenon, the researcher will invariably meet disjunctions between the traditions within the research phenomenon and the theory guided expectations; the disjunction signals a breakdown. That is, when a *strip* of the theory is not understood in relation to tradition, a breakdown has occurred. Once a breakdown is identified, something must be done about it and the process of moving from breakdown to understanding is called resolution. In resolution, the theory is modified or a new theory is constructed before trying again. This process of resolution continues until all breakdowns are resolved, resulting in what is called coherence. A coherent resolution can be known to have been reached when the resolution can "1) show why it is a better resolution than others that can be imagined 2) tie a particular resolution in with the broader knowledge that constitutes a tradition and 3) clarify and enlighten, to elicit an "aha" reaction from the members of the different traditions that make up the ethnographic encounter" (Agar, 1986, p. 22). The process is diagrammatically depicted in Figure 3.1 below.

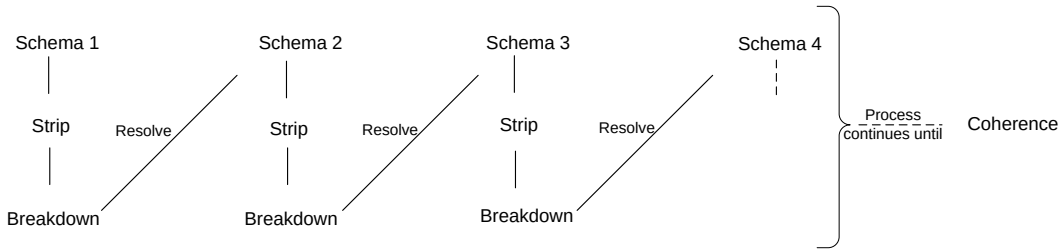

Figure 1: The Breakdown-Resolution-Coherence Process of Creating a Theoretical Framework

Thus, to explore the possibilities of ICT to facilitate policy implementation in a development context the four identified theories presented '*strips*' through which the research phenomena could iteratively be '*resolved*' towards a '*coherent*' schema.

4.2 The Capabilities Approach

The Capabilities Approach (CA) with its underlying paradigm in welfare economics (Sen, 2001) is an interdisciplinary framework (Robeyns, 2005b) which has been used in to analyse emancipatory research (Fukuda-Parr, 2003, JICA, 2005, Evans, 2002, Sen, 2005, UNDP, 2007).

This research regarded the Capabilities Approach (CA) as the foremost framework for the research because of its emancipatory essence. CA assesses individual well-being and social arrangements based on what individuals are able to do and to be. CA prescribes removing obstacles that inhibit individuals from living the life they value and providing the means to achieve such a life (Robeyns, 2005a, Sen, 1999). The CA argues that opportunities for development should not merely be judged by their existence for it is possible for the opportunities to exist but in reality cannot be drawn upon and achieved.

4.2.1 Empirical Evidence for CA

For example, there are internet facilities within the government Thusong Service Centres (TSC) where individuals have the opportunity to interact with the government through channels such as email. In reality, these opportunities cannot be drawn upon because the individuals do not know how to use email. As such, the real value of internet facilities as a

development commodity within TSCs for individuals to interact with government does not exist.

The CA has been shown to be problematic in two main ways; it is not prescriptive and, it takes an overly individualistic approach which in retrospect then avoids issues of political economy (Stewart and Deneulin, 2002, Krishnakumar, 2007). The strength of traditional approaches to assessment of well-being is in their structured proposition of the indicators that can be used to assess well-being as well as the weightings for those indicators. This prescriptive quality of traditional approaches makes them favourable to be adopted into policy (Stewart and Deneulin, 2002) unlike the CA which proposes a (contextually dynamic) list of capabilities (Uyan-Semerci, 2007) that are needed by every individual for that individual to be considered to be living a satisfactory life (Robeyns, 2005b). To overcome this operationalisation problem, Robeyns (2000) proposed a schematic representation of the CA (Figure 1).

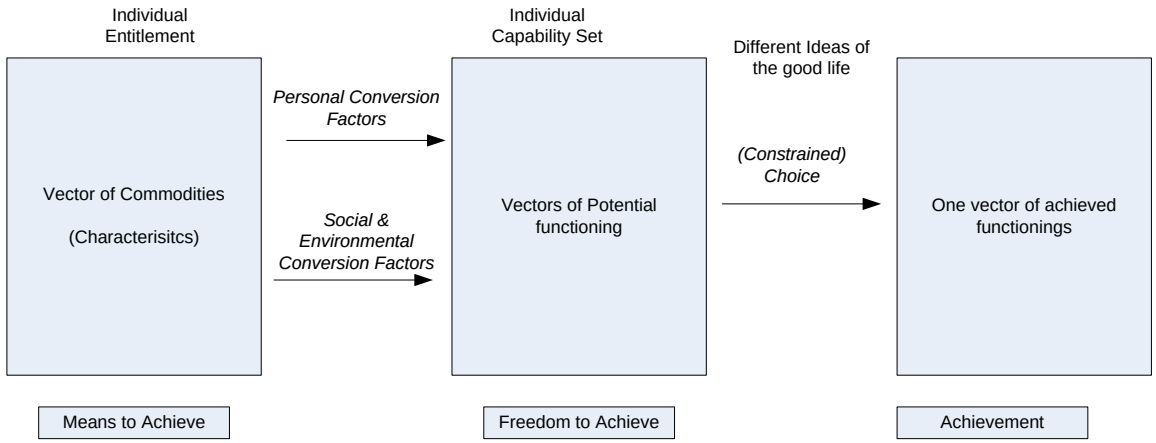

Figure 2: A schematic representation of the Capability approach (Robeyns, 2000)

The individualistic approach which is a dominant aspect of the CA makes the implicit assumption that people come together for instrumental reasons alone thereby ignoring the need for affiliation that is intrinsic to people and is a necessary part of development. The same individualism ignores the power of politics in influencing decisions which can only be combated through the collective and not through individual efforts (Stewart and Deneulin, 2002). The CA is insufficient to comprehensively capture the interactive and socially influenced relationship between the collective and the individual as is the case in collaborative government-citizen interactions. To counter this shortcoming, Ibrahim (2006) calls for an expansion to collective freedoms which he defines as "the freedom of a group to perform a set of agentially distinct actions in combination" . Collective agency plays a role in individual agency and collective action is more powerful than individual action. Collective agency and action are powerful enough to influence "policy and bring about political change" (Fukuda-Parr, 2003). This interaction within the collective agency can be explained through Habermas' TCA which explains how the collective can reach agreement through rational discourse.

4.3 Theory of Communicative Action:

Emancipation is one key element of CST which sets it apart from other social research. In this sense, CST goes beyond explaining to revealing and critiquing injustices and inequity as is required in development informatics or ICT4D as this research is. With TCA emanating

from CST, it illustrates how traditional IS has predominantly focused on instrumental action and thus serving to unquestionably reinforce prevailing systems of governance.

4.3.1 Empirical Evidence for TCA

With reference to South Africa, this realization exemplifies the need to rethink and restructure the ICT systems in place if transformation and emancipation from the previous oppressive means of policy implementation is to be achieved. Traditionally, ICT systems are used to increase productivity and also to support management and administrative compliance, thus to effect social compliance. This signals an important danger, that if ICT systems that are used to facilitate social interactions are employed uncritically, these ICT systems may only actually reinforce existing systematic distortions and power plays rather than overcoming the barriers to effective social communication.

For this research it is the concepts of communicative and discursive action which are of interest. Communicative action explores bases for compromise and agreement, interpretations of shared norms and, values and the meaning of observations and experiences. In the event that there is no shared base, people fall back to a common background of assumptions about the world – their lifeworlds. If there are different backgrounds, discourse can fail.

In critique of communicative action Foucault suggests that power is not lodged in a central institution that can be easily identified and overthrown but resides in the collectives that determine what counts as legitimate evidence and acceptable forms of arguments through regimes of truth (Rose, 1999, Denzin and Lincoln, 1994). Foucault questioned whether rational discourse is possible if the power vestiges are invisible but can determine the agenda. The latter significant criticism related to the collective signaled another breakdown of TCA to succinctly explore the collaborative government-citizen interactions towards policy implementation using IS. To resolve this breakdown we turned to socio-technical literature which examines the relationship between society and technology and takes into account power relations; the Social Shaping of Technology and the Diffusion of Innovation theory. These theories explore the social processes in collectives and how they tone technological innovations.

4.4 Social Shaping of Technology and Diffusion of Technological Innovation:

Social Shaping of Technology (SST) studies examine the relationship between society and technology by exploring the unique social processes and contexts that shape technological innovations (Howcraft et al., 2004, p. 239) . SST suggests that political, economic, social, cultural and organisational factors influence the design and usage of technological innovations. The Diffusion of Innovations (DoI) theory offers a different linear explanation to the introduction and spread of technological innovations within society. DoI proposes a four stage process in which; (1) a technological innovation (2) is communicated through certain channels (3) over time (4) among the members of a social system.

Actor-Network Theory (ANT), a conceptual social constructivist tool of SST, attempts to avoid the linear causality problem of other SST approaches. In IS research, ANT has been used analytically especially as an interpretive lens and has been credited as giving a voice to technological artefacts (Cordella and Shaikh, 2003, Stanforth, 2006). Avgerou and Madon (2004, p. 176) also recommend ANT as an appropriate methodological tool that can be used to analytically frame IS studies where the boundaries of the problem emerge from within the context. ANT lends support to the ICT4D argument that IS should be considered as a

sociotechnical system whose technology is embedded and influenced by the social structures rather than IS having intrinsic value in itself. In so doing, ANT helps to elucidate the processes that occur in the creation of a stable network as comprised of technology and humans whereby the technology evolves accordingly to reflect and support the interests of the human members of the network.

4.4.1 Empirical Evidence for DoI and ANT

At government level, the creation of a stable network comprised of technology and people, as explained by ANT, needs to be made explicitly clear for the purpose of policy implementation. In policy implementation, which is concerned with putting into effect the aims of policy decisions on an ongoing basis (Barrett, 2004, Barrett and Fudge, 1981, Van Meter and Van Horn, 1975), it is crucial for there to exist clear guidelines on what to do, when and where as well as a clearly identified actor who purposively seeks to influence other actors towards a better way.

Two important criticisms of ANT which are critical for this research is that ANT does not consider the wider social structures that operate at the macro level (Lievrouw, 2006) such as government which structures have a significant influence at the micro level. Secondly, ANT is good on describing but not on explaining (Howcroft et al., 2004). Government decisions influence actions at the local, sectoral and individual level, which influence needs to be understood and further explained to those at the local level in order to suggest relevant and contextual improvements. The resolution of this particular breakdown is accounted for in Habermas' TCA where the process of dialogue is explicitly laid out and the interaction between the wider social structures and local social structures is exemplified, albeit, as ideal types.

The other significant criticism of ANT is the presumption that the actors are chosen and defined by prior external decisions and then the process continues (Barnes, 2001). This externality of decisions creates a great deal of ambiguity for decision makers and signals a significant inability of ANT to contribute to policy implementation, another breakdown point. To resolve this criticism, we borrow the strip of 'a change agent' from the Diffusion of Innovations Theory.

In the Diffusion of Innovation theory Rogers (1997, , 1995) explains that the diffusion of technological innovations occurs along a four stage linear process of communication of new ideas, in which; (1) a technological innovation (2) is communicated through certain channels (3) over time (4) among the members of a social system. A change agent is one who seeks to influence other individuals towards what the change agent believes is better.

DoI is criticised for being technologically deterministic in its treatment of innovations as a given, unitary and stable phenomenon throughout the diffusion process, and in its assumption about a linear rate of adoption as depicted in the S-shaped curve. DoI's linear top-down suggestion of how the four variables come together towards the adoption and implementation of an innovation does not apply to the complex societal mix and collaborative approach to policy implementation that this research is investigating. However, in practice it is required to have a list of actionable points to follow which is easy for implementers to adopt (a deterministic approach) and DoI provides this type of approach which if incorporated into an overall conceptual schema avoids the deterministic nature of the DoI.

4.5 The Theoretical Framework

Together, the above theories assisted in creating a more *coherent* understanding of how ICT could policy implementation in a development context. Figure 3 graphically represents the theoretical framework that resulted from the breakdown-resolution-coherence process which began with the CA, through the TCA and finally through the diffusion of technological innovations theories. Table 3 illustrates the theoretical framework as tool to guide research adopting an Action Research strategy and as a tool for analysis analyzing the research setting as a case study.

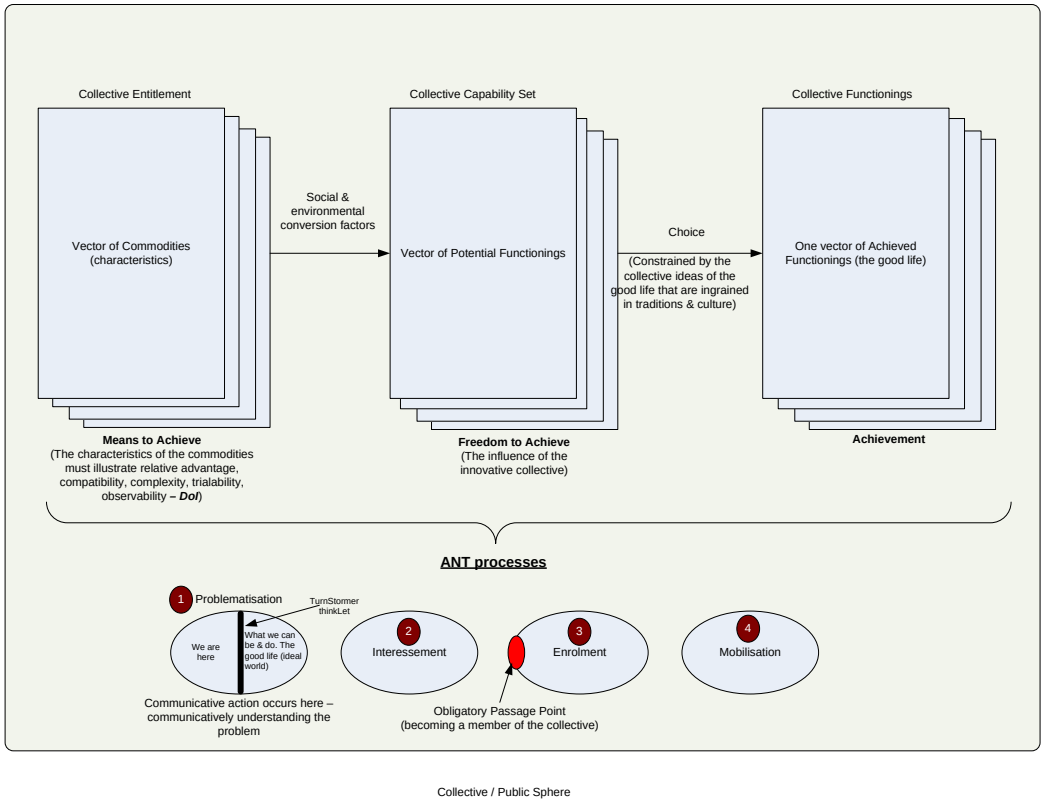

Figure 3: The Theoretical Framework

Table 3: The Theoretical Framework as a Research Guide and Analysis Tool

AR Stage	Theoretical Framework Stage	Analysing the PAJA Project
Diagnosing	1. Identify the existence of a problem. The existence of: a. A situation which prevents the emancipation of the livelihood of an individual or group of individuals in the community b. An opportunity to improve the livelihood of the individual and/or community c. Policy whose implementation will lead to the improvements of the livelihood of individuals -	1. The problem consisted of; a. Unemployment b. The existing communities with a paertnership with the research group c. **The Promotion of the Administrative Justice Act 3 of 2000**
Action Planning	2. The change agent persuades individuals into an	2. The researcher and/or

	innovative collective illustrating; a. The innovative collectives' composition of technological artifacts & people b. Role of the individuals to participate in open debate c. Role of the technological artifacts in their characteristics d. The group influence e. Demonstrable examples of achievement	government official a. The community available computers at the Thusong Service Centres (TSC) b. The explanation of the need for open debate c. The computers as tools for open debate d. The group is able to influence decision at government level e. Research feedback e.g. *"This program has been a life changing experience", "it makes life easier for our communities, and this freedom at last"*
Action Taking	3. Convinced individuals enroll into groups. The enrolment process involves the Obligatory Passage Point which means assenting to; a. All discourse will be conducted in open debate b. Discourse where necessary will be facilitated using technological artifacts. c. Usage of Technological artifacts is available for novices d. The group makes an attempt at an achievement and follows it through.	3. The physical logs where the research participants signed the ethical clearance & research participation forms agreeing to a) – d)
Evaluating	4. Check the existence of a new social system emerging a. Members of the innovative collective attempting to recruit new members b. The change agent does not have to be available for open debate to occur	4. Research feedback comments such as; a. "*The invitation must be extended to (the) community at large"* were indicative of member recruitment b. By the third year, the researchers did not have to give the instructions on what needed to be

		done for open debate using computers.
Specifying Learning	5. Suggestions are made towards improving aspects of the particular theoretical framework	5. The research framework is to be adopted based on a different policy.

5. CONCLUSIONS

The theoretical framework proposes a plausible framework on how ICT can facilitate policy implementation in a development context. It begins with the Government providing its citizens a vector of commodities in the form of infrastructure such as ICT, enabling policies and various other incentives that will emancipate people. These are the means to achieve. For the citizens to take advantage of the available vector of commodities, they need to collectively learn how to actually take advantage of the available vector of commodities. The processes of learning are social and environmental conversion factors. The purpose of ICT is to facilitate interaction with government officials and for the purpose of building consensus within the collective as part of the social and environment factors. ICT as a commodity is drawn on for its appealing characteristics in moving people in the collective towards consensus more effectively and efficiently. Over time a new lifeworld is created which lifeworld consists of ICT as one of the actors/actants in the collective (social network). This new lifeworld of the collective has its own ideals and as such identifies what it believes are actual achievements. As a result of the collective's continuous engagement with government officials, the collective will be able to actually attain one of the achievements. This makes the collective appealing and will as such attract more members.

Through the framework, we were also able to observe how a change agent is able to use influence people, individually and collectively, to emancipate themselves using available means such as the law. This is an important element for ICT4D research, emancipation and the ability to draw on freedoms towards an achievement.

5.1 Contribution to ICT4D Research

The theoretical framework provides a coherent critical-interpretive approach that can inform ICT4D research in its critical and reflective view of the role that IS plays in maintaining social order and relations in organisations and society (Doolin, 1998, Pozzebon, 2003).

5.2 Contribution to Practice

The framework provides an easy to follow process with prescriptions on what to do. This is an important element for decision makers who prefer to work with easy to follow steps rather than 'esoteric' notions. Practitioners prefer prescriptions and not descriptions. The framework incorporates past successes as a motivator for potential new members of the new lifeworld. It also incorporates the ability for discourse on past failures and how they could have been better approached.

5.3 Limitations and Areas for Further Research

Due to space limitations as required for a conference paper, we are only able to briefly espouse the ethnographic immersion as well as the theoretical framework that emerged.

The framework as it exists is arguably supported in the qualitative paradigm. To ascertain its fitness as a critical-interpretive approach for ICT4D, the framework needs to be subjected to 'rigorous' testing to verify and validate it. This can be achieved by applying the framework in

more than one setting. Typically, this would be to test the framework's ability to drive, guide, explain and evaluate ICT4D research and projects in another developing context.

4. REFERENCES AND CITATIONS

AGAR, M. (1986) *Speaking of ethnography,* Beverly Hills, Sage Publications.

ALEXANDER, P. M. & PHAHLAMOHLAKA, L. J. (2007) Amartya Sen's Capability Approach applied to Information Systems Research. *The South African Computer Journal,* 37**,** 1-11.

AVGEROU, C. (2003) The link between ICT and Economic Growth in the Discourse of Development. IN KORPELA, M., MONTEALEGRE, R. & POULYMENAKOU, A. (Eds.) *Organizational Information Systems in the Context of Globalisation.* London, UK, Kluwer Academic Publishers.

AVGEROU, C. & MADON, S. (2004) Framing IS Studies: Understanding the Social Context of IS Innovation. IN AVGEROU, C., CIBORRA, C. & LAND, F. (Eds.) *The Social Study of Information and Communication Technology: Innovation, Actors & Contexts.* Oxford, Oxford University Press.

BARNES, B. (2001) The Macro/Micro Problem and the Problem of Structure and Agency. IN RITZER, G. & SMART, B. (Eds.) *Handbook of Social Theory.* London, Sage Publications.

BARRETT, S. & FUDGE, C. (1981) *Policy and Action Essays on the Implementation of Public Policy,* London and New York, Mathuen.

BARRETT, S. M. (2004) Implementation Studies: Time for a Revival? Personal Reflections on 20 years of Implementation studies. *Public Administration,,* 82**,** 249-262.

CHEN, Y. N., CHEN, H. M., HUANG, W. & CHING, R. K. H. (2006) E-Government Strategies in Developed and Developing Countries: An Implementation Framework and Case Study. *Journal of Global Information Management,* 14**,** 23-46.

CORDELLA, A. & SHAIKH, M. (2003) Actor Network Theory and After: What's new for IS Research? IN CIBORRA, C. U., MERCURIO, R., DE MARCO, M., MARTINEZ, M. & CARIGNANI, A. (Eds.) *Proceedings of the Eleventh European Conference on Information Systems.* Naples, Italy.

DENZIN, N. K. & LINCOLN, Y. S. (1994) *Handbook of Qualitative Research,* California, Sage Publications.

DOOLIN, B. (1998) Information Technology as Disciplinary Technology: Being Critical in Interpretive Research on Information Systems. *Journal of Information Technology,* 13**,** 301-311.

EVANS, P. (2002) Collective Capabilities, Culture, and Amartya Sen's Development as Freedom. *Studies in Comparative International Development,* 37**,** 61-70.

FUKUDA-PARR, S. (2003) The Human Development Paradigm: Operationalizing Sen's Ideas on Capabilities. *Feminist Economics,* 9**,** 301-317.

HAMMERSLEY, M. & ATKINSON, P. (1995) *Ethnography : principles in practice,* London, Routledge.

HARRIS, L. (2006) SITA calls on private sector for help. *Computing SA.*

HEEKS, R. & BAILUR, S. (2007) Analyzing e-government research: Perspectives, philosophies, theories, methods, and practice. *Government Information Quarterly,* 24**,** 243-265.

HOWCRAFT, D., MITEV, N. & WILSON, M. (2004) What we may Learn from the Social Shaping of Technology Approach. IN MINGERS, J. & WILLCOCKS, L. (Eds.) *Social Theory and Philosophy for Information Systems.* Chichester, England, John Wiley & Sons Ltd.

HOWCROFT, D., MITEV, N. & WILSON, M. (2004) What we may Learn from the Social Shaping of Technology Approach. IN MINGERS, J. & WILLCOCKS, L. (Eds.) *Social Theory and Philosophy for Information Systems.* Chichester, England, John Wiley & Sons Ltd.

IBRAHIM, S. S. (2006) From Individual to Collective Capabilities: The Capability Approach as a Conceptual Framework for Self-help. *Journal of Human Development,* 7**,** 397 - 416.

JICA (2005) Aid to Africa and the UK's '2005' Agenda: Perspectives of European Donors and Implications for Japan. IN COURT, J. (Ed.), Overseas Development Institute.

KANUNGO, S. (2004) On the emancipatory role of rural information systems. *Information Technology & People,* 17**,** 407-422.

KLEIN, H. K. & HUYNH, M. Q. (2004) The Critical Social Theory of Jürgen Habermas and its Implications for IS Research. IN MINGERS, J. & WILLCOCKS, L. (Eds.) *Social Theory and Philosophy for Information Systems.* Chichester, John Wiley & Sons Ltd.

KRISHNAKUMAR, J. (2007) Going Beyond Functionings to Capabilities: An Econometric Model to Explain and Estimate Capabilities. *Journal of Human Development,* 8**,** 39-63.

LIEVROUW, L. A. (2006) New Media Design and Development: Diffusion of Innovations v Social Shaping of Technology. IN LIEVROUW, L. A. & LIVINGSTONE, S. (Eds.) *The Handbook of New Media.* Student Edition ed. London, Sage Publications Ltd.

ODEDRA-STRAUB, M. (2003) "E-Commerce and Development": Whose development? *The Electronic Journal on Information Systems in Developing Countries,* 11**,** 1-5.

PHAHLAMOHLAKA, J., TWINOMURINZI, H., OJO, R., MAHLANGU, Z. & MASANABO, L. (2008) Assessing the quality of the 'TurnStormer' thinkLet as a Collaboration Engineering building block for the Implementation of the Promotion of Administrative Justice Act of South Africa. *IFIP Workgroup 9.4-University of Pretoria Joint Workshop.* Pretoria, South Africa, IFIP WG 9.4.

POZZEBON, M. (2003) Criteria for Conducting and Evaluating Critical Intepretive Research in the IS Field. *Cahier du GReSI,* 3.

REED, B. G. (2005) Theorizing in Community Practice: Essential Tools for Building Community, Promoting Social Justice, and Implementing Social Change. IN WEIL, M. (Ed.) *The Handbook of Community Practice.* Thousand Oaks, California, Sage Publications Inc.

REPUBLIC OF SOUTH AFRICA (2006) State of Public Service Report 2006: Assessing the Capacity of the State to Deliver. IN PUBLIC SERVICE COMMISSION (Ed.), South African Government Online.

RICHARDSON, H. & ROBINSON, B. (2007) The mysterious case of the missing paradigm: a review of critical information systems research 1991-2001. *Information Systems Journal,* 17**,** 251-270.

ROBEYNS, I. (2000) An unworkable idea or a promising alternative? Sen's capability approach reexamined. Leuven, Technology Republic.

ROBEYNS, I. (2005a) The capability approach and welfare policies. *Coonference on Gender Auditing and Gender Budgeting.* Bologna, Italy.

ROBEYNS, I. (2005b) The Capability Approach: a theoretical survey. *Journal of Human Development,* 6**,** 93-114.

ROCK, P. (2001) Symbolic Interactionism and Ethnography. IN ATKINSON, P., COFFEY, A., DELAMONT, S., LOFLAND, J. & LOFLAND, L. (Eds.) *Handbook of Ethnography.* London, SAGE.

ROGERS, E. M. (1995) *Diffusion of Innovations,* New York, Free Press.

ROGERS, E. M. & SCOTT, K. L. (1997) The Diffusion of Innovations Model and Outreach from the National Network of Libraries of Medicine to Native American Communities. Albuquerque, New Mexico, National Network of Libraries of Medicine.

ROSE, N. S. (1999) *Powers of freedom : reframing political thought,* Cambridge, United Kingdom ; New York, NY, Cambridge University Press.

SCHENSUL, S. L., SCHENSUL, J. J. & LECOMPTE, M. D. (1999) *Essential ethnographic methods : observations, interviews, and questionnaires,* Walnut Creek, Alta Mira.

SEN, A. (2005) Human Rights and Capabilities. *Journal of Human Development,* 6**,** 151-166.

SEN, A. K. (1999) *Commodities and capabilities,* Delhi ; New York, Oxford University Press.

SEN, A. K. (2001) *Development as freedom,* Oxford, Oxford University Press.

SOUTH AFRICA (2006) E-Government Knowledge Exchange (e-Gov KnowEx). Pretoria, Centre for Public Service Innovation.

STANFORTH, C. (2006) Using Actor-Network Theory to Analyze E-Government Implementation in Developing Countries. *Information Technologies and International Development,* 3**,** 35-60.

STEWART, F. & DENEULIN, S. (2002) Amartya Sen's Contribution to Development Thinking. *Studies in Comparative International Development,* 37**,** 61-70.

STRAUSS, A. (1987) *Qualitative Analysis for Social Scientists,* New York, Cambridge University Press.

STRAUSS, A. & CORBIN, J. A. (1990) *Basics of Qualitative Research: Grounded Theory Procedures and Techniques,* Newbury Park, California, Sage.

THE PRESIDENCY (2007) Development Indicators: Mid-Term Review. Pretoria, The Presidency, South Africa.

TWINOMURINZI, H. (2007) An E-Collaboration Approach to Buy-In of Development Innovations in Rural Communities: A South African Experience. IN IFIP TC 9 / WG 9.4 (Ed.) *Proceedings of the 9th International Conference on Social Implications of Computers in Developing Countries.* São Paulo, Brazil.

TWINOMURINZI, H. & PHAHLAMOHLAKA, L. J. (2005) Enhancing procedural fairness in administrative action of the Administrative Justice Act of South Africa using web-based Group Support Systems. *Second Conference on Online Deliberation: Design, Research, and Practice / DIAC-2005.* California, Stanford University.

TWINOMURINZI, H. & PHAHLAMOHLAKA, L. J. (2006) Simulating the Implementation of the Administrative Justice Act with ThinkLets and GroupSystems: A Comparative Analysis from Three Field Studies. *Conference on Information Technology in Tertiary Education.* Pretoria.

UNDP (2007) Human Development Report 2006: HDI Country Fact Sheet - South Africa. United Nations Development Programme.

UYAN-SEMERCI, P. (2007) A Relational Account of Nussbaum's List of Capabilities. *Journal of Human Development,* 8**,** 203 - 221.

VAN METER, D. S. & VAN HORN, C. E. (1975) The Policy Implementation Process. A Conceptual Framework. *Administration and Society* 6.

WADE, R. H. (2002) Bridging the Digital Divide: New Route to Development or New Form of Dependency? *Global Governance,* 8**,** 443-466.

WALSHAM, G. (1993) *Interpreting Information Systems in Organizations,* Wiley, Chichester, John Wiley & Sons.

WALSHAM, G. (2001) *Making a World of Difference: IT in a Global Context,* West Sussex, John Wiley & Sons Ltd.

YOUNG, J. & RIDLEY, G. (2003) E-Commerce in Developing Countries. *The Electronic Journal on Information Systems in Developing Countries,* 11**,** 1-6.

ZUBOFF, S. (1988) *In the age of the smart machine : the future of work and power,* New York, Basic Books.